THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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CRUELTY TO ANIMALS.

In our report of the recent meeting of the North of England V.M.A., will be found a very fair and temparate statement of the complaints so often made against the action of the Society for the Prevention of Cruelty to Animals. Perhaps the very practical grievance of costs referred to by Mr. Hunter is more the fault of the Magistrates than the Society. It is a fact that when the Inspectors are unsuccessful in obtaining a conviction the Magistrates seldom or never allow the defendants' costs. The result is that if a poor man successfully defends a case by the aid of a solicitor and professional witnesses he has to pay his own costs, which usually represent more than the amount of fine imposed in an undefended case. In the recent case where the Society prosecuted a Veterinary Surgeon in London no costs were allowed, and the victim was mulcted in something like £400. Had he been unable to fight the charge as he did. the crushing weight of evidence brought against him by this rich Society would simply have ruined him.

In the more or less trivial cases which enable the Society to produce, month after month, the long list of convictions which appeal to the soft side of subscribers we find the greatest hardships. Too often the evidence is grossly exaggerated and symptoms of pain and suffering are graphically described which appeal but too effectually to the occupants of the bench. Old scars are described as sores, and superficial abrasions as ulcerated surfaces. Alterations of harness made with a view of preventing contact are not described as evidence of care and humanity, but as proof that the owner knew the animal had a sore when it was sent out. Every horse-owner knows how corns, sand-cracks, quittors, and other conditions may be healed, and the horse work sound for a week or two; how during a journey acute lameness may suddenly come on; and how stupid and tired carters may imagine that some temporary cause of lameness exists which will "soon pass off." At this stage the Society's officer appears, and after examining the animal commences an ingenious system of cross-examination, not for the direct purpose of eliciting truth, but with the object of leading the man into self-criminating admissions. This is not fair, and is entirely opposed to the spirit in which all other criminal charges are conducted. Whilst we deprecate what we charitably call the excessive official zeal displayed by Inspectors, we cannot altogether acquit some members of the profession from being accessories. The evidence given by veterinarians—men holding our diploma—in support of some cruelty cases is simply abominable. To magistrates professional evidence is of nearly the same weight whoever gives it; but the trained and experienced witness possesses a great advantage. In most towns it will be found that one man monopolises the work of the R.S.P.C.A., and practice makes him very efficient. Many a poor man has been fined or imprisoned for working a horse with a superficial wound on its skin, whilst he himself has for months attempted to earn a living for his family with a wide and deep ulcer on his leg, or perhaps with some painful joint-disease that by comparison makes the equine trouble the merest triviality. Deliberate cruelty meets with no defence from us, nor have we any excuse for the pain inflicted by gross negligence or crass ignorance. What we protest against is the abuse of an Act of Parliament which, as at present carried out, entails a great deal of injustice, and is made to value animal suffering far higher than that of man. Thousands of men work every day with injuries and disease causing a greater degree of pain than those which the law and the R.S.P.C.A. say shall cause a horse to remain idle in his stable.

THE MINUTES OF COUNCIL.

The letter we publish from the President, Mr. Lambert, partly clears up the case we referred to last week. Sir Henry Simpson, it will be remembered, objected to the minutes, and asserted that a motion of his was not correctly reported. The President now states that the motion on the minutes is what he put to the Council, and what was carried. This, too, is what our independent report stated, and what our own recollection bears out. How comes it, then, that Sir Henry Simpson states that his resolution was in writing, that he handed it to the Secretary, and that it is quite different from the motion on the minutes? Assuming that everyone is speaking by the book, the only explanation which can reconcile every statement is that Sir Henry handed in a resolution in writing differing from the verbal one he submitted to the meeting. If this be so, we fail to understand why he objected to the minutes being confirmed. If members of council were to be allowed to propose a motion, wait till it had been carried, and then hand in an altered motion in writing, we should very soon arrive at a method of conducting business in which no one would have the slightest idea as to what he voted for. We have not yet arrived at this stage of imbecility.

CASES AND ARTICLES.

"CANKER OF THE EAR."

By Professor E. F. de Jong, New Vety. Coll.

Under the above heading in last week's *Record*, Mr. A. J. Sewell, M.R.C.V.S., describes a parasite, which he calls "psoroptes auricularis canis," and states that he cannot find it has ever been noticed in the dog's ear or mentioned before.

From the illustrations he gives the parasites appear to belong to the genus symbiotes, and not to that of psoroptes. To the ordinary observer these two genera are very similar, but, upon a careful examination, they can be easily distinguished. In the symbiotes the head is slightly conical and as broad as long, and the suckers are attached to the terminal segments of the limbs by a simple and *very short* pedicle; whereas in the psoroptes the head is much more elongated—the pointed head being characteristic of the genus—and the suckers are attached by a *long, three-jointed* pedicle.

A parasitic disease of the dog's ear was described by Prof. Hering, of Stuttgart, in 1834, who found an acarus, to which he gave the name of "sarcoptes cynotis." In 1849 the same parasite was again met with in a dog's ear by Sallé, and described by Lucas and was called by Lucas and Nicolet, "sarcoptes auricularum." In 1862 Bendz (of Copenhagen) described and figured the parasite of the dog's ear, and he named it "symbiotes canis." In 1874 Schumer (of Potsdam) met with parasitic otitis in the dog, of which Zurn described the "symbiotes." Finally, the malady has been especially studied by Guzzoni, Mégnin, and Nocard, and the name of the parasite is "symbiotes auricularum var. canis."

This parasite, like all other fully-developed acari, has four pairs of legs. I say fully-developed, because at the larval stage the fourth pair of legs are absent.

In the egg-bearing female there are no suckers to the two pairs of posterior legs, and the fourth pair is rudimentary but not absent, as stated by Mr. Sewell. The females are sexually mature when about half-grown, and the fourth pair of legs reduced to the condition of prominences carrying a single thread.

ELECTRICITY IN CANINE PRACTICE.

By way of proving that electricity can be applied to the dog successfully without shaving off the hair, I beg to offer you the following case for publication:—

Some two years ago a gentleman, having a fox-terrior bitch (a great favourite) seized with general paralysis, asked me to take it under my care. I did so with great distrust that I should be able to benefit the poor animal, which was unable to feed, and had to be kept on liquids forcibly administered. She was totally helpless, and used to defœcate and micturate as she lay. I tried her for three weeks with all the approved remedies, such as aperients, nerve-tonics, iodides, counter-irritants, &c., with not the least success; and I told the owner that the case was hopeless unless electricity might benefit her. He asked me to try, and I procured one of Hearde's batteries, and applied it by damping the coat of dog and the pad of battery, and placing it on the parts I deemed necessary. On the first application it had no effect on her, but by the fourth application it became so painful to her that it was necessary to use a strong muzzle. To my delight, by the end of the first week the bitch could prop herself up on her fore parts, and would take solid food; by the end of six weeks the bitch was running about; and in eight weeks was returned to her owner cured, and is still living and well. During the whole time of applying the battery I desisted from using medicine of any description. I simply applied the battery by damping the dog's coat; and if Mr. Hill has any doubt, I shall have great pleasure in referring him to owner of dog.

"Vet."

A PECULIAR CASE.

By John Malcolm, F.R.C.V.S.

Perhaps the following case may be of interest to some of your readers, and I shall be personally indebted if either you or any of them can give me any information on the matter. Yesterday I was asked to examine a chestnut mare suffering from a disease the symptoms of which are, so far as my experience goes, unique. She had been out at grass until six weeks ago when she was taken up and put into the breakers' hands to get her ready for work. She was then apparently in perfect health and in good fair condition, at least nothing was noted amiss. The first indications of ill-health were detected on her return from the breaker a fortnight since. It was then noticed that she had lost condition and developed an unthrifty appearance generally. She also showed signs of more or less coronitis on all four feet, and it was subsequently found that her appetite was much impaired. The regular veterinary attendant was consulted, but treatment so far has been ineffectual, and it was in consequence of this that at his request I saw the case yesterday. I found the mare in rather a miserable plight, much emaciated and moving with difficulty. The skin was dry and hard except at the base of the chestnuts, which had all fallen off, and at one or two other points on the legs which presented a decidedly eczematous appearance. There was extensive coronitis on all four feet, in each case the coronary band throughout its whole extent being involved. The skin had sloughed off and left a raw inflamed surface about ½ inch in width, completely encircling each coronet and entirely separating the skin above from the hoof beneath. No doubt this state of the coronets had much to do with the pain and difficulty she had in progressing. The mucous membrane of the mouth was slightly tumified and very much darker in colour than normal, but there was

no salivation, no acute inflammation, nor any ulceration present. Her appetite was nearly in abeyance, and what little remained was much interfered with by a difficulty in swallowing. The vulvular and vaginal mucous membrane was darker than usual, and around the base of the clitoris was almost completely involved by ulceration, and the whole surface so affected was more or less covered by a whitish yellow, cheesy-looking secretion.

There were twelve or fourteen ulcers in all, varying in sizes from a pin's head to a circle of nearly ½ inch in diameter. They were all discrete and circular, and most were depressed in the centre and distinctly raised at the edges, but in no wise appearing very angry or inflamed. Her urine, I was informed, was voided without apparent pain or irritation, and was normal in quantity, but thicker in consistency and whiter in colour than natural. So far as is known there has been no act of coition. The nasal, conjunctival, and anal mucous membranes were all healthy, and the respiration, pulse, and temperature were normal. Treatment had been the administration of febrifuges internally, and the application of antiseptic dressing locally, but so far it has been entirely without beneficial effect.

MEGRIMS AND EAR DISEASE.

The article which appeared last week from the pen of Mr. A. J. Sewell, on a form of canker in the ear of dogs due to a variety of Acarus, is interesting for more reasons than one. It is an addition to our clinical knowledge, and it practically advances canine pathology by recognising a cause of disease and supplying its cure. It does more than this—it establishes the fact that Acari in the ears of dogs or cats may exist without causing any epileptiform symptoms. Mr. Sewell states that in cats "*in some cases* they induce rather remarkable symptoms" but he adds "I have never seen the acarus cause the same symptoms in the dog." This evidence as to fact is of far more value than any assertion, no matter how positively stated. It may be compared with an extract from an editorial article in the last number of *The Veterinary Journal* which, speaking of Megrims, says "That the symptoms are due to derangement in the auditory apparatus can scarcely admit of a doubt, and especially when we know that acari in the ears of dogs . . . . . give rise to epileptiform symptoms, not much unlike those exhibited by horses."

Mr. Sewell's statement of facts, as observed by him, goes to show that acari in the ears of dogs do not give rise to any vertiginous symptoms, and thus deprives the theory that megrims is a disease of the ear of its special foundation.

We are not in a position to deny that megrims *may* be due to some undiscovered disease of the ear; we know so little of aural diseases in the horse that almost any assertion may be made about them without much danger of contradiction. We know very little about megrims; so little in fact that it requires more boldness than knowledge to assert than any hypothesis as to its cause "can scarcely admit of a doubt." It may be right and proper to direct the attention of scientific men to any plausable theory of a disease, even when the only supports we can give it consist in a subjective symptom drawn from human medicine and an objective symptom drawn from canine practice. It is very wrong and improper within a few days of forming such a theory to assume that "it can scarcely admit of a doubt," but it is most unfortunate to do so when the fact is immediately shown to be very doubtful.

That the cause of vertiginous and epileptiform disorders is not yet clearly known "can scarcely admit of a doubt" and it would be well for all of us to preserve an open mind until something more than a crude hypothesis is offered as a resting place.

W. H.

SPONTANEOUS RUPTURE OF UTERUS IN A BITCH.

By H. Watkins-Pitchford, M.R.C.V.S., Camberly.

The following case presents some points of interest, and may throw some light upon the diagnosis of what I believe to be a rare accident in veterinary obstetrics.

I was called to attend a valuable Scotch terrier bitch, in her second parturition. The animal, I was told, had gone her full time, had been four days in labour, and had just become suddenly much worse.

On examining the animal I noticed that the abdomen was extraordinarily distended. She lay motionless, and apparently collapsed. There was a complete absence of throes, and a rapid, feeble pulse. To all appearance death was rapidly approaching. Vaginal examination revealed the fact that the os was closed. This was gently dilated with the tip of the finger, and the cavity of the cervix cautiously explored. No presenting part was anywhere within reach. The animal died in a few hours.

At the necropsy it was found that there was an irregular rent of about two inches in length, running longitudingly along the upper aspect of the cervix and the junction of that part with the body of the uterus. The rent was on the right-hand side of the middle line.

The edges of the wound were fringed with recent lymph, and the peritoneal cavity contained a small quantity of coffee-coloured fluid. One fœtus, with its placenta, was found lying free in the peritoneal cavity among the coils of the small intestine. The uterus, which was very large and had extremely thin walls, contained six other full-time pups.

Owing to an unfortunate conjuncture of circumstance (not the least of which was the absence of the owner), the Cœsarian section could not be performed. No one, I think, can doubt but that this proceeding would have been the correct line of treatment. It would necsssarily be followed either by suture of the wound in the uterus or by complete removal of this organ with ligature of its stump.

THE WORD "VETERINARY."

Although the word "veterinarian" is to be found in an English dictionary before the arrival of Professor St. Bel in Britain, we know no instance of the use of the word "veterinary" as applied to any person or thing. There were forges, chemists, druggists, and surgeons; but none of them qualified by the prefix, "veterinary." It was only when the Frenchman, St. Bel, proposed to found a veterinary school here that the word first came into use. It was doubtless adopted from the French. The students of the veterinary college, established at the end of last century, called themselves veterinary surgeons, and they dropped the word farrier. Earlier writers on diseases of horses entitled their works "On Farriery," &c.; but the men who wrote after the college was opened—as Blaine, in 1802—used the word veterinary. Blaine called his book, "Outlines of the Veterinary Art." In course of time veterinary surgeon became the accepted designation of those who practised surgery as applied to the lower animals. When the title became worth having there were, of course, individuals who pirated it.

In the second volume of *The Veterinarian* is a report of a meeting called to consider the method of examination adopted at the Royal Veterinary College. The meeting was held on July 22nd, 1829, and one of the speakers was a Mr. Sibbald, who had studied at the college, and obtained its certificate. In his speech he said: "My father was a farrier. He was intimate with the greatest practitioner of his day, Layton, who was not a veterinary surgeon, but was farrier to the king. The term 'veterinary surgeon' arose with the college. There is honour attached to it. I have obtained it, and I prize it." This is good evidence of the use and meaning of the term.

In 1844 all the certificated practitioners united together and obtained a charter, in which it is set forth: "And we do further declare and grant that the veterinary art as practised by the members of the said body politic, solely and exclusively of all other persons, shall be recognised to be members of the said profession, and shall be individually known and distinguished by the name or title of Veterinary Surgeons." Clearly the intention of this charter was to give an exclusive right of title to those holding the veterinary diploma. As a charter cannot enforce its provisions by fine and imprisonment, the privileges granted were soon unwarrantably assumed by men who know no barrier, excepting fine and imprisonment. These persons assumed the title to which they had no right, and thus imposed upon the public who were unable to distinguish between the legitimate and illegitimate practitioner.

In 1881 the Legislature passed an Act of Parliament expressly "to enable persons requiring the aid of a veterinary surgeon to distinguish between qualified and unqualified practitioners." This Act provides for the punishment of any person, not on the Register of Veterinary Surgeons, who shall "use the title of veterinary surgeon or veterinary practitioner, or any name, title, addition, or description, stating that he is a practitioner of veterinary surgery or of any branch thereof." Now, what are the branches thereof? We perform surgical operations on animals, we prescribe for their diseases, we dispense medicines for animals, and we keep forges in which to shoe them. I hold, therefore, that the branches of veterinary practice are performing operations, prescribing and dispensing medicines, and shoeing. Anyone may practise all these branches without holding our diploma, but they must not practice under the title "Veterinary," which is "a title, addition, or description," prohibited by the Act.

In 1791 we coined and adopted the word "veterinary" as a distinctive title. In 1844 a Royal Charter declared that we were *solely and exclusively* recognised by it, and in 1881 an Act of Parliament imposed a penalty on the use of our designation by all unqualified persons. This is what we have now to maintain, and it is our own fault if we permit our privilege to be taken from us.

VETERINARY SOCIETIES.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The usual quarterly meeting of the above Association was held on Friday, the 21t inst., at the County Hotel, Newcastle-on-Tyne. The President, A. Hunter, Esq., in the chair. The members present were Messrs. C. S. Hunting, C. Stephenson, J. Aitken, F. Finney, J. W. S. Moore, W. Hunter, J. Brodie, Nisbet, H. Hunter, W. Ashton Hancock, D. Dudgeon; and Messrs. Johnston, Ashby and Currie, visitors.

The minutes of the previous meeting were taken as read and adopted.

Mr. J. R. Crone was nominated as member of the association.

"CRUELTY TO ANIMALS ACT,"
AND A FEW NOTES ON ITS ADMINISTRATION,
By Mr. H. HUNTER.

Mr. PRESIDENT AND GENTLEMEN,

In bringing before your notice the subject of the Prevention of Cruelty to Animals Act and its administration. I may say that I am quite in sympathy with the act itself, and I am sure that our profession generally are anxious and willing to assist the R.S.P.C.A., in forwarding the objects they have in view, so far as they can consistently with their opinions as to what really constitutes cruelty within the meaning of the Act.

The following is the section of the act under which proceedings are usually taken. "That if any person shall, from and after the passing of this Act, cruelly beat, ill-treat, overdrive, abuse or torture, or cause to be cruelly beaten, ill-treated, over driven, abused or tortured any animal, every such offender shall for every such offence forfeit and pay a penalty not exceeding £5."

I will now proceed to notice what I consider some of the anomalies, and inconsistencies in the administration of the act, in reference more especially to horses.

As a rule, magistrates refuse to give costs against the Society although they may have been proved to be entirely wrong, and to have brought forward a case without the slightest reason. The case is dismissed, the defendant has to suffer the indignity of being dragged to the Police Court on a charge of this kind, and to pay his own costs, besides the loss of time of himself and possibly his horse. Is this justice or equity? Veterinary Surgeons are often consulted as to alleged acts of cruelty where the animal has been stopped working by the inspector, and although in their opinion it is no cruelty, they often advise them, if poor people, not to defend the case, as it is cheaper to be fined than defend it. Is this right? and should a powerful society, however good its objects, be allowed to inflict such a wrong and injustice on poor people? If costs were given against the Society when they failed to prove their case it would tend to temper the zeal of the inspectors with reasonable discretion.

Many cases of a very trivial character are brought to the Court, and the evidence given in support of the charge is very often exaggerated to a great extent.

The time which is allowed to elapse after the alleged offence is said to have been committed and the issue of the summons, prevents steps being taken to get evidence to rebut the charge, as they are left in doubt as to whether they will be summoned or not; in fact they are often under the impression that they will not be summoned.

If an inspector, in connection with any case which he considers cruelty, is referred to a Veterinary Surgeon, I think it ought to be imperative upon him to consult such veterinary surgeon, and to hear his explanation before taking any further steps. Due weight is not given to the fact that some lamenesses do arise very suddenly, may have occurred after the animal left the stable, are only temporary in their nature, and are quickly relieved.

It is well known that many animals are very tender in the skin, and in spite of all the care and attention you can give them it is difficult to prevent abrasions occurring. When it is found that every effort is being made to prevent this by easing the harness, by false collars, zinc pads, etc., due consideration should be given to these efforts, for it is evidence that there is no intention to be cruel, but quite the reverse.

There are many cases of slight lameness from various causes such as bent legs, shortened tendons, anchylosed and stiff joints, grease, etc., in which the animals suffer little or no pain and are perfectly fit to work; yet such cases are frequently taken to the Police Court and the owners fined.

In some cases of lameness, exercise or light work are essential to recovery, such are lymphangitis, laminitis, and cases of adhesions.

Veterinary Surgeons are frequently asked in the witness box whether they will swear that the animal is suffering no pain. This I consider an unfair question, for it is not a question of absolute freedom from pain, but rather —does the pain the animal suffers amount to cruelty? If the former was to be the definition, then fully one third to one half the animals in the county might be stopped to-morrow.

The action of the Society is becoming so oppressive that many horse proprietors are seriously thinking of combining to protect themselves.

Is it wise from the Society's own point of view to alienate the sympathies of the public by any injudicious and oppressive action on their part? I feel quite sure many members would cease to subscribe if they thought that injustice and hardship was inflicted on poor people with out any sufficient reason.

I am afraid that many cases are not fairly stated to the Society by the inspectors, or they would never sanction the prosecution of such trivial and unsuitable cases as are frequently brought forward.

Discussion.

Mr. C. S. Hunting said that he had listened with interest to Mr. Hunter's paper, and, although his experience of cruelty cases was somewhat limited, he thought, in many instances, the course pursued by the officers of the Society for the Prevention of Cruelty to Animals was very oppressive; and there appeared to him to be too great a desire to obtain convictions, especially against the poor people. He instanced a case showing the extent the officers will go to in the way of exaggeration so as to gain their case.

Mr. W. Hunter mentioned that formerly he was in the habit of attending to give evidence on behalf of the society, but he gave it up about two years ago, as it occupied so much of his time, and interfered with other work. For his part he thought the officers of the society were well chosen, and felt they should not be spoken too harshly of, as they had very difficult work to perform; but he certainly thought the police were in the habit of getting up very poor cases; in fact, cases came into court that never should have been thought of.

The President next made a few remarks, and related several cases which tended to show that the society were far too ready to prosecute the poor horse-owner and let the well-to-do owner go without interference, although probably the latter may have been the greater offender of the two.

Mr. Stephenson said he hoped it would not go abroad that this profession did not desire to support the society, but he must certainly state his conviction that the officers were, in many instances, very much to blame. His experience was that many so-called acts of cruelty were the result of thoughtlessness rather than from any desire on the part of the owner to inflict pain. He felt that the society would do more permanent good if they would strive to educate the poor to be kind, instead of prosecuting them for every trivial case that occurred.

Mr. Moore claimed that this profession was the best friend of the Society, and he endorsed all that had been said by Mr. Stephenson. He also thought that the Magistrates took it for granted that the evidence of the Inspector must be right, and mentioned a case that after the evidence of the Inspector and Veterinary Surgeon, was dismissed, and it really turned out to be a personal matter; in fact the Inspector was heard to remark subsequently, that had the defendant kept a civil tongue in his head he would never have been prosecuted.

Mr. Currie said he had on one or two occasions had horses stopped by the police for most trifling things, such as small wounds on the withers where no harness could possibly come into contact with them.

Mr. D. Dudgeon thought that the Society had done a great deal of good but not an unmixed good, it was to his mind governed by far too much sentimentality. He had known of cases in which the officers had been trying to get cases up against Veterinary Surgeons for having expressed an opinion that horses could be worked. The question of costs was also a very great hardship, and seeing that defendants (even if the Society failed to prove their case) could never get costs, it was far wiser to advise them to go to Court and be fined than to go to the cost of defending the case.

A unanimous vote of thanks was accorded Mr. Hunter for his paper.

W. Ashton Hancock,
Hon. Secretary.

At the Melbourne Veterinary College on February 12th Mr. S. S. Cameron, M.R.C.V.S., lecturer on anatomy and general pathology, was the recipient of a very handsome illuminated address from the students in token of high appreciation of his efforts, of gratitude for the interest he had taken in him, and as a tribute to his ability.

THE HYGIENIC CONGRESS.

On Meat Infection—Food Poisoning.

By Edward Ballard, M.D., F.R.C.P., F.R.S.

I have undertaken, at the request of the Council of this Section, to open the discussion of the third question which it has been arranged that the Section should consider, viz, "Infection of Meat, Milk, and other Comestibles." It is a subject which has come largely into prominence of late years, during which the mode of morbific infection of food and the manner in which such infection comes to operate on the human body have been made matter of diligent research. Carrying back my memory to an antecedent period, little was known beyond this:—that occasionally symptoms of poisoning followed the use of apparently wholesome kinds of food, but the phenomena of food poisoning were not in any case that I recollect identified with those of any known specific disease, with the exception perhaps of cholertic diarrhœa or cholera nostras.

Milk especially, prior to about twenty years ago, was regarded as invariably a particularly wholesome and harmless kind of food, and gastro-intestinal disturbances, obviously resulting from the eating of flesh foods, or of soups etc. prepared from them were commonly attributed to accidental impregnation of the food with such metallic poisons as copper or antimony, or, in rare instances, to some chemical changes in its organic constituents, the nature of which, if it differed at all from ordinary putrefaction, was unexplained, and at that time inexplicable. Indeed, much of the etiological research of the last 20 years has had reference to the production of disease in man through the agency of his food. Investigations into the spread of certain specific fevers, such as enteric fever and scarlet fever, through milk took the lead, at all events in this country; investigations which have always appeared to me to have been the natural outcome of the epoch-making labours of Dr. John Snow on the relation of epidemic cholera to infected water, and the subsequent demonstration by others of a similar origin in the case of outbreaks of enteric fever.

Of necessity all that could at first be established as to the spread of specific disease by milk, by the comparatively rough method of clinical inquiry, was the bare fact of the milk being accidentally infected, of conveying the specific contagion into the human system. But since the rise and cultivation of the science of bacteriology new and more delicate methods of research have become available. We have now been taught by the experts in this branch of physiological and pathological microscopy, and by the complementary work of organic chemists, a great deal that we wanted to know about the nature of that which we were in the habit of calling "*materies morbi*," and where this has been determined a good deal further about the connection that sometimes exists between an animal furnishing food, and the disease that food may produce in man. And this new method of research has further become available for the elucidation of the phenomena of what has been called "food-poisoning." I propose in this communication to the Congress to limit my remarks to this latter branch of the subject which is to occupy the attention of the section to-day, and to lay before the section the results of a short series of experiences which, during the last ten or twelve years, have fallen to the lot of the medical department of the Local Government Board of this country, experiences which very largely derive such value as they possess from the devoted labours of Dr. Klein, who has always been obligingly ready with his invaluable assistance.

Fourteen instances of such poisonings out of a larger number that have from time to time come under the notice of the Medical Department of the Local Government Board are available for my present purpose, and will serve to illustrate the points to which I desire to draw the attention of the Section. Some of them have been fully reported in the published reports of the medical officers; others have been published elsewhere. Dr. Ballard here gave a list of the outbreaks. He next detailed the well-known Welbeck epidemic, the Nottingham series of cases, the Chester case, the Oldham and other cases.

His conclusions are as follows:

1. I may quote the words of Dr. Buchanan, the Medical Officer of the Board. He says (19th Report, p. xiii.): "The phenomena which we speak of as 'food-poisoning,' productive now of one and now of another sort of definite malady among consumers of certain foods, are claiming, on ever-growing evidence, to be regarded as true infective diseases, as much so as scarlatina or tuberculosis. That they have not been generally admitted into this rank arises, first, from the circumstance that some of them have seemed to be wanting in an incubation period; and, secondly, because they are rarely recognised as transmissable from person to person. But from our researches of this very year (1888) we derive some new considerations that materially affect the importance of incubation, as determining the infective nature of a poison; while we need go no further than the experiences of Middlesbrough in 1888 to find suggestion of disease-bacteria operating alternately through the atmosphere and through infection of food material by them."

2. In infected food, capable of producing disease on being eaten, we find one or both of two things—a living microscopic organism and an organic chemical poison of greater or less virulence.

3. Of these two things, that which is immediately operative in the production of the morbid phenomena is the chemical poison, which is apparently of a basic nature and a product of the processes of bacterial life.

4. Specifically different bacteria capable of producing this chemical poison may through its agency give rise in the human system and in animals to clinical phenomena and pathological changes in the organs which are so similar that at present they cannot be distinguished.

5. Given the bacterium and favourable environment, the bacterium may grow, multiply, and produce its own special chemical poison from the material which affords it nourishment, either outside the body or within it. One important element of environment is temperature. If a bacterium will not grow at the temperature of the body it of course will not produce its operative chemical poison when introduced into the system.

6. Moreover, both the bacterium that produces the chemical poison in an infected food and the chemical poison itself may apparently be evanescent; perhaps in the former case the bacterium being killed by its own products, and perhaps in the latter case, because the chemical poison undergoes destructive changes. Hence an infected food, poisonous when eaten at one time, may fail to be poisonous when eaten at a later period, or poisonous when inoculated at one time may cease to be so later on; or one portion of an infected mass of food may be poisonous, and another part not be so.

7. It is to be observed that in many cases of food poisoning an incubation period has been distinctly traced, in others it has been less obvious; in some there was practically none, only from half an hour to a few hours elapsing between taking the food and the initial symptoms of the malady. This presence and absence of incubation may be taken as clinical evidence of the symptoms being due to the operation within the body of the bacterium itself, or of their being due (at first, at all events) to the operation

of the chemical poison already prepared in the food Where merely the bacterium is introduced, time is required, as in other specific infections for the growth and multiplication of the micro-organism in the body, with the formation there of its poisonous chemical product. When the chemical poison already prepared outside the body is introduced, it operates more speedily, the rapidity of the operation being proportional to its quantity and quality, and the individual peculiarities of the recipient. In the several series under consideration the instances of long incubation (where it has been possible to ascertain the fact) occurred in cases where there was no doubt of bacteria having been introduced into the system, as in the Welbeck and Nottingham ham and pork cases, and the Retford pork pie case. I had reason to think that in the case of the Middlesborough bacon the incubation period was 18 to 36 hours or perhaps a little longer. On the other hand, where it was certain that no bacterium was introduced in the food,or one which would not grow at the temperature of the body, as in the Chester sausage case, the Wolverhampton tinned salmon case, and the Iron Bridge veal pie case, or was non-pathogenic on inoculation as in the Portsmouth instance, the illness commenced at periods varying from half an-hour to 10, 12, 14, or 17 hours only after eating. But in some of these food-poisoning series of cases there were individuals who suffered quickly and others who suffered after a longer interval. It was so in the Welbeck series of cases, where the interval varied from less than twelve hours to more than forty-eight hours; in the Nottingham pork case, where it varied from about twelve hours to thirty-four hours; in the Whitchurch pork case (No. 7), from seven to over nineteen hours; in the Carlisle (A) case from six to fory-three hours, and in the Retford case from under four to about thirty-six hours after eating. The interpretation of these varieties appear to be that, in the food eaten, the bacterium capable of developing in the body and the chemical poison already formed in the food were not equally distributed through the mass of the material, one individual case getting more of the one and another more of the other in the portion given him. Where as in the Whitchurch pork case (No. 7), persons who fed upon the food latest had the shortest interval and the most severe attack, the interpretation may be that the individuals who fed at an earlier period got the bacillus in an active stage, when little of the chemical poison had been produced in the food, and those who fed later on got a larger dose of the chemical poison, for the more abundant production of which by the bacterium time had been afforded by the postponement of the eating.

8. As regards the kinds of animal food which in the adduced instances produced mischievous or fatal results. Of the fourteen instances food was, or consisted largely of—

Pig-meat of one kind or another in	9 instances.
Veal	1 instance.
Beef	1 „
Butcher's meat (kind unstated)	2 instances.
Tinned salmon	1 instance.

I am disposed to think that this is no unfair representation of the relative frequency with which swine's flesh thus gives rise to specific diseases of the kinds referred to, as compared with animal food from other sources. Certainly, apart from these instances, this corresponds with my general experience, and I expect the experience of the profession at large. What explanation can be offered of this? There is no reason whatever to believe (quite the contrary) that the food in any of the instances above recorded, contained the specific micro-organism before it was prepared for food. The American pork that, converted into mild bacon at Middlesbrough, was a means of conveying to persons eating it a specific pneumonic fever was obtained from American firms at Chicago and elsewhere of the highest repute, and consignments of the same brand at about the same time to other similar bacon makers at Stockton, only a mile or two distant, did not spread any epidemic, so far as I could learn, among its consumers; nor did other hams or bacon than those which produced disease at Welbeck, although made from the same consignment of American pork, produce similar disease to the Welbeck epidemic. And it is to be noticed that in the Nottingham pork case and the Bishop's Stortford beef case (No. 5.) other portions of the carcases were eaten harmlessly. And this is an observation I have made in other instances of food poisoning within my experience.

The truth of the matter seems to be that the accession of the specific bacillus to the food is what we commonly call "accidental," which of course only means in this case that it comes from somewhat beyond our present knowledge. We do not know its normal habitat, but assuredly it now and then becomes air-borne, infects food of a kind that affords it appropriate nutriment, multiplies and produces its appropriate chemical poison there, and produces its appropriate specific disease in persons who consume the infected food. I have elsewhere suggested a similar hypothetical explanation of epidemic summer diarrhœa, another unquestionably specific disease. But if we do not know where the normal home of the bacillus is, nor how it escapes to do mischief, we do know something about the circumstances under which it gains access to food, which may help to elucidate even this point. It is to be noted that in every instance except one (No. 2, the Nottingham pork case), it was food that had been prepared a day or longer previous to its consumption, stored in one way or another, and then eaten cold, which produced disease. And it is the conditions under which the preparation of the food took place, and under which it was subsequently stored, that, in certain of the instances narrated, served to furnish a clue to the knowledge we want. The observations I made indicate an infectiveness of the place where these things were done, in association with uncleanliness of air, of soil, or of surface. I must be content to refer to my reports on the Welbeck and Nottingham cases, and to my summary of the Carlisle (A) case, as evidence of this, and notably to my report on the Middlesborough outbreak, where the circumstances of the processes of bacon-making at Middlesborough and Stockton are contrasted. Still, all this does not explain the special liability of pig-meat to produce these specific maladies. How is this to be accounted for? I have been disposed to gather a suspicion of what the explanation is from what I have said above about the Nottingham pork case, viz., that it was perhaps the gelatinous gravy and not the flesh of the pork that was really the peccant material. I could not hear of anyone having been made ill by eating the pork served to them after it had become cold, which, of course, would have been without gravy. And the explanation I have to suggest is this, that of all adult flesh meats ordinarily eaten, pork under the process of cooking furnishes the largest proportion of gelatin. Young meats, such as veal, (used in the Iron Bridge case), are also largely productive of gelatin; and gelatin is a favourite nutriment of morbific bacilli. We may note how many of the articles of food most generally partaken of at the Carlisle wedding breakfast were gelatinous or gelatinised. These were the cold American ham, which moreover was glazed on the surface with gelatin, the game pie, the cold boiled salmon, and among the sweets, the jellies and the trifles. Of two or more of these everyone that was taken ill had partaken. The Portsmouth case illustrates the same point, since a boy who ate nothing but gelatinous gravy (with pie-crust that was beyond suspicion) was made as ill as others who had eaten the meat of the pie.

9. And yet another word, before I conclude, on the practical application of all this. What does it all indicate as an efficient precaution against food poisoning?

Of course no one is likely to be hindered by any fear of infection from eating cold ham or gelatinised food of any kind if he likes them. But if we do eat ham or bacon, cold or warm, it is a proper precaution to avoid them if not duly cooked throughout. The people who chiefly got pneumonia in Middlesborough were a class who habitually only warmed the bacon they ate by slightly toasting it before a fire; they did not heat it sufficiently to kill any micro-organism; and hotel hams (indeed, hams cooked at home too) are rarely thoroughly cooked. But the grand precaution of all is the very commonplace one signified by the word cleanliness. Every factory where pork is converted into brawn or hams ought to be so arranged that light and a draught of air can penetrate freely everywhere; there should be no corners where refuse matter can lodge and become a centre for the cultivation of morbid micro-organisms in filth; the rise of ground air is obviated by cement under the pavement or flooring; and the place should be kept scrupulously clean and free from incursions of sewer air or putrid emanations of any kind. Kitchens, and above all pantries and places where food is stored in hotels, public refreshment rooms, or pastrycook's premises, and in private houses, should be similarly cared for. It should be held to be part of the business of conservators of public health to see that these rules are observed, as well as the business of every master or mistress of a family.

The following paper by VICTOR C. VAUGHAN, U.S.A. was then read:—

THE INFECTION OF MEAT AND MILK.

The infection of meat and milk may be discussed under the following heads:—

1st. The infection may be due to a diseased condition of the animal from which these foods are obtained.

2nd. The infection may be due to the inoculation of these foods with specific pathogenic micro-organisms outside the body of the animal from which they are derived.

3rd. Meat and milk, especially the latter, are often infected with saprophytic toxicogenic bacteria.

The transmission of disease by the use of flesh or milk has been repeatedly shown to occur. Cases of Gartner of Jena illustrate this. A cow suffering from mucous diarrhœa was killed. Post-mortem examination showed patches of inflammation in the intestines, and enlargement of liver and spleen, but the flesh, normal in odour and colour. 57 persons in 25 families were made ill by eating the meat. A vigorous young man ate 800 grammes of the raw meat at eight p.m.; two hours later he began to vomit and purge, and 35 hours after he died. Post-mortem it was found that there was an inflammatory condition of small intestine and swelling of Peyer's patches. Those who ate the meat raw or insufficiently cooked were much the most seriously affected. In many cases there was fever running as high as 40·8 C. In the severe cases which recovered there was desquamation. In the meat and in the tissue of the dead man Gartner found a short bacillus, which he has designated by the name bacillus enteritiditis. Susceptible animals inoculated with pure cultures of this germ died. The chemical poison was not isolated, but its existence was demonstrated by the fact that sterilised cultures injected into animals caused sickness and death. The outbreak of meat poisoning investigated by Gaffky and Paak most probably belongs to this class. The poisoning was by means of sausages, the symptoms headache, vomiting, and purging. From the sausage a short bacillus was isolated, which when given by the mouth or injected into animals produced the same symptoms. The chemical poison was not isolated. In the Welbeck cases Ballard has given a good description, and Klein has isolated the bacillus. That chemical poisons may be transmitted is shown by history of poisoning with mussels and fish. As early as 1827 Combe described cases of poisoning by eating mussels, and a recent contribution to this subject has been made by Schmidtman. The disease known to the Japanese as hakka, and which is said to be identical with beri-beri, and is prevalent at Tokio from May to October, and is generally subacute. The symptoms are paralysis of diaphragm, with dyspnœa and interruption to the action of heart.

2. The infection of meat and milk outside the body of the animal with specific pathogenic bacteria. Typhoid fever, diphtheria, and other diseases are known to be thus disseminated.

3. It is not necessary that food be infected with some specific micro-organism before it can be rendered unfit for use. I will briefly discuss the nature of some of these germs. Many belong to the saprophytic organisms; the germs have not been derived either directly or indirectly from a diseased animal. A case of poisoning by custard, investigated by Dr. Vaughan, illustrates this. The custard made from the milk was divided into two portions, one flavoured with lemon, the other with vanilla. The lemon was harmless, while a teaspoonful of the other caused vomiting and purging. It was proved that the vanilla was not the poisonous agent. The explanation of the difference was found in the fact that the vanilla custard stood for two hours in a very filthy room, with the air in a most polluted condition, while the lemon had not done so.

Another illustration is found in the cases at Carlisle, reported by Barnes in 1886. In these cases the germs did not originate in any specific disease, but grew in the food before it was taken into the body.

Saprophytic germs may induce disease and death in two ways.

(1.) The poison formed with milk or meat may be the sole cause. The fact that the first symptoms do not appear until many hours after the food is taken does not absolutely disprove this.

(*b*) A germ may grow in the intestines and still be an obligate saprophyte. A germ which will grow in a certain medium in a culture flask, and produce a poison, may grow on same medium in the intestines and produce the same poison.

(*c*) Some of the germs may have the power of living for a short time in a parasitic manner.

(*d*) The toxicological properties of these bacteria are also influenced largely by the conditions under which they develope, such as temperature, amount of oxygen supply, etc.

The infection of milk is one of the most serious questions which can interest the student in public health, as it constitutes one of the most important factors in the causation of infantile mortality. A large proportion of the deaths of infants is due to diarrhœa. The attacks of diarrhœa are most prevalent among children artificially fed, and they are not due to a specific germ, but may be caused by a large number of different micro-organisms. The germs are saprophytic, and their harmful effects are due to the chemical poisons which they elaborate. Recognition of this factor in infantile diarrhœa has led to the use of sterilised milk, and though a lessened death rate has followed, the total result is disappointing. The failure is due to the following reasons: 1st, The process is difficult, and as attempted is often not accomplished; 2nd, even when efficient there is no evidence that the chemical poison is destroyed; 3rd, the food is often re-infected in alimentary canal of the child.

It would be best, if milk which had never been infected could be obtained. I am also satisfied that in the feeding of a child suffering from summer diarrhœa it is better to wholly withold milk for some days than to give sterilised milk, because the latter immediately becomes re-infected in the stomach and intestines. I cannot close without emphasising the importance of the work

which those who are called upon to investigate cases of food poisoning must do. The method of procedure should be both chemical and bacteriological. A complete and thorough search for inorganic poisons should be made. the germs found should be grown under conditions as nearly identical with those under which the suspected food has existed or can be obtained. Tests should be made not only for the basic product of putrefaction, but for the bacterial products as well. Physiological tests upon lower animals should never be neglected.

Discussion.

Professor R. Blanchard, of Paris, said: I desire to say a few words on poisoning from ingestion of meat. This poisoning is designated collectively *botulisme*, and it does not appear that under this name is comprised accidents which essentially differ as to their original cause. By the word *botulisme*, from the Latin *botulus*, a sausage, is essentially understood poisoning consecutive to the ingestion of bad or putrid sausages. The word *botulisme* has generally the wide meaning of poisoning from any kind of meat. Putrefaction of meat, we all know is due to microbes. These invade the meat, are nourished by it, and multiply therein, producing at the same time chemical substances called ptomaines, most of which are intensely poisonous. But there exists a large number of animals whose flesh is normally toxic, quite irrespective of putrefaction or disease. Without speaking of certain fish, in the blood of which has been discovered a substance named "ichthyitoxine," I would confine myself to the poisoning produced by certain fish in the Cuban Sea (Meletta venenosa), or from the Japanese Sea (Diodon cetrodon). In the meletta it appears that the poisonous principle resides in the muscles. As for the plectograths so-called of Japan, it appears from the researches of my colleague, M. Remy, that the poison resides exclusively in the glands, which are in a state of physiological sub-activity. In the one case as in the other, the chemical substance is produced entirely from the physiological activity of the animal tissues, and poisoning is due to the ingestion of leucomaines. Thus there are two very distinct categories of poisoning by animal flesh. (1) *Botulisme* is meat poisoning produced by microbes in which the latter have elaborated ptomaines. (2) Poisoning from fresh meat which is caused by leucomaines produced by physiological activity.

Professor Brown complimented Dr. Vaughan upon his paper, and desired to refer to some of the points prominently brought forward. He stated that it was evidently quite clear that there were microbes having no special morphological structure, which might undergo various changes under cultivation, and which produced unanticipated effects. The bacteriologist was at present somewhat hampered in regard to his cultivating medium. It was well known that some organisms would only grow in the presence of air, and others refused to grow under such conditions. It was a question whether some of these diseases were due to organisms at all. He agreed that everything connected with bacteriology was at present in a most unsatisfactory position. Whilst doubting the practicability of Dr. Vaughan's suggestion that every cheesemaker should employ a bacteriologist, he thought something should be done in this direction, in order that they might be relieved from the present unhappy condition of things. Whilst there were some dairies which were model institutions, the ordinary surroundings of the dairy in the typical dairy district were most filthy, and the emanations from such dairies could be felt, or at any rate smelt. It was a disgrace that dairy products should be collected under such unsatisfactory conditions, and he agreed with Dr. Vaughan in his suggestion that something should be done to relieve them from this state of things, in a country which pretended to take an interest in sanitary science.

Mr. Fleming, F.R.C.V.S., said Professor Blanchard had shown in a remarkably lucid and interesting manner the source of production of physiological and pathological Materials which are considered dangerous in certain foods, and Drs. Ballard's and Vaughan's statements corroborated what has been often reported. The conditions under which dairies are kept and cheese is made were also points about which there could be no doubt as to their being in many cases most unfavourable. But were the conditions under which flesh was prepared in the slaughter-houses of only too many towns any more favourable? They were often filthy in the extreme; and, even if they were otherwise, the localities in which they are situated are most foul. In discussing the question of meat infection, this fact should not be lost sight of.

Section II. and III.

Conjoined Discussion on Tuberculosis.

The President, Sir J. Lister, took the chair at 10 a.m., on Thursday, 13th inst. He remarked that Sir Nigel Kingscote, the President of Section III., was unable to attend the conjoined discussion on tuberculosis, and that he had been asked to take the Presidentship of the combined meeting. The President called upon Professor Burdon Sanderson to read his paper.

The Professor said he would speak principally on the etiology of tuberculosis. There are two branches of study—I., pathological or etiological; II., practical, or the uses to which the knowledge given by I. can be put. There are several points which might be accepted as fact before proceeding, such as the existence of the tubercle bacillus. The identity of bovine and human tubercle, and the existence of danger in the use of tuberculous meat. There are two questions which arise: 1. That of inheritance, and its effect in the production of tuberculosis. 2. What are the channels of entrance of the tubercle bacillus. The first will not now be discussed. Concerning the second, the bacilli may enter by the lungs or intestine. Protection may be studied in reference to the individual or the community. He then referred to the conclusions of the recent Paris Conference on tuberculous meat. Arloing showed that out of every six carcases of beef one was tuberculous, so that if 1,000 carcases were eaten there would be danger of infection in over 100. It must yet be proved that if we did not eat tuberculous meat we should be free from tuberculosis. Chauveau and Baumgarten were the first to draw attention to the danger ef eating tuberculous meat. Baumgarten showed that tuberculosis was primarily an affection of the lymphatic system. We still are in want of more experimental research. It was no answer to say that the dangers of tubercle infection were exaggerated. If it is true they existed, they could not be exaggerated. From statistics it is shown that 14 per cent of deaths are due to tuberculosis. The deaths are found principally in infancy before four years, and between twenty and thirty years. In ordinary phthisis the lungs are primarily affected, no matter where the infection is introduced. In experiments with animals, if the tubercle material is inoculated under the skin the lungs may be the first part affected. It is thus seen that although the infection is first absorbed by the gastro-intestinal tract, the lungs may be the first parts affected. Tubercle of the intestine does not occur primarily, but it does secondarily in the adult. It can often be traced from the lungs along the larnyx to the intestines. In childhood the case is different. So far this branch has not been sufficiently studied. Where systematic bacteriological observations have been carried on in children's

hospitals statistics show that nearly one-third of the deaths are accompanied by tuberculous lesions. The lymphatic glands are first affected, afterwards the bones. The reason that measles and whooping-cough are so frequently followed by tuberculosis is probably that the subject has already tuberculosis of the lymphatic system, and the broncho-pneumonia following, easily becomes tuberculosis. These cry, togenetic tuberculous affections must be put down to conditions present before birth. As regards the consumption of tuberculous meat, it may be maintained that it is dangerous; but if we had a law to-morrow to forbid the sale of tuberculous meat it would entail great expense, as we must have some one scientifically trained to correctly diagnose the condition. Everything depends on the diagnosis. The veterinary surgeon is not competent to make what the French call the "*diagnose précise.*"

Conclusions.—There are not facts enough as yet to say definitely that tubercle taken by the intestine produce general tuberculosis, but in children tubercles of the intestine are followed by tubercle of the glands and the bones, so that we may infer that the same may occur in the adult; but we are in great want of more experimental research. More evidence is wanting as to the cause of tubercle in infancy. As regards Government administration, the reader advises a strict system of inspection extending over the whole country, acting equally in different parts. Tubercle should be included in the Contagious Diseases (Animals') Act. We still want information as to the actual prevalence of tubercle. About five per 1,000 cattle are generally condemned as tuberculous. This involves compensation, which will require extra taxes (which would be very small) to be levied.

Professsor Bang (of Copenhagen) then read a paper

On the Alleged Danger of Consuming the Apparently Healthy Meat and Milk of Tuberculous Animals.

The great majority of investigators agree that the essential source of tuberculosis in man is to be found in man himself; but nearly all admit that man can contract the malady by the ingestion of meat or milk from animals affected by tuberculosis. As to the extent of this danger opinions differ. In France a Presidential decree has forbidden the sale and use of milk from tuberculous cows; but Professor Bang regards the application of these measures as impossible in countries where tuberculosis is prevalent; and, moreover, they do not seem to him to be necessary. Professor Bang describes a number of experiments which he has made on this subject with tuberculous cows. Of fifty-eight cows whose milk was inoculated into rabbits and guinea-pigs, there were nine in which the milk proved virulent. On the whole, he thinks tbe milk of a tuberculous cow with udders apparently healthy is not in the great majority of cases dangerous, though it is undoubtedly so sometimes, and is always suspicious. As to meat, Professor Bang thinks the experiments by others show that the muscular tissue is so unfavourable a nidus for the tubercle bacilli that they do not multiply in it. The number of bacilli found in the meat of tuberculous animals must always be very limited. A series of experiments which Professor Bang has made upon the virulence of the blood of twenty cows extremely tuberculous gave negative results in eighteen cases, and positive results in two cases only. He thinks the seizure of the meat of every tuberculous animal too severe a measure. So long as the tuberculosis is strictly localised the meat is not a source of danger. Where the malady is generalised, the consumptian of the meat may be dangerous, although it is not so always. The eating of under-cooked meat should be discouraged; but the best means of avoiding danger to the health of man is to take all possible measures for preventing the propagation of tuberculosis amongst our domestic animals.

Professor Bang also spoke of the necessity of raising the temperature of milk sufficiently to kill tuberculous bacilli before manufacturing it into cream or butter.

Professor Arloing said the question of transmissibility of tuberculosis from animals to man was of very great importance, but the *diagnose précise* was very difficult. The danger to children of drinking milk from tuberculous cows was great. He was decided in his views concerning the total condemnation of tuberculous meat, and criticised strongly Dr. Bang's views thereon. He thought all tuberculous animals dangerous to health, and that meat was often under-cooked and the bacilli left pathogenic. He then read some statistics in support of his view. In conclusion, he advocated a strict inspection, not only of large towns, but also of all the smaller centres of population.

On the Transmission of Tuberculosis from Animals to Man by Means of Flesh and Milk Derived from Tuberculous Animals.

By Professor McFadyean and G. Sims Woodhead, MD., &c.

The evidence as to the transmission through the flesh of tuberculous animals is very conflicting, apparently in great part because the methods used are different and the conditions are not uniform. Do human beings ever contract tuberculosis through the ingestion of tubercular material derived from the lower animals? As the result of a large number of observations made on taberculosis in children, we think this question can probably be answered in the affirmative. As regards the possibility of animals setting up tuberculosis *(a)* when introduced *en masse*, *(b)* when the expressed juice only was administered, experiments go to prove that the juice only, does not in most cases, contain a sufficiently large number of bacilli to set up tubercle, even when inoculated into small rodents, but from the fact that they had observed tuberculous masses in the muscles of the buttock of tuberculous cattle, we must accept the fact that tubercle bacilli may sometimes, perhaps rarely, be present in considerable numbers in this position. Of three cows slaughtered on one day at one slaughter-house, well-defined tubercle was found in the muscles of the buttocks of two animals; in one of these there was tuberculosis in almost every organ and part of the body; in the other, there were only a few nodules in the lung and in some of the glands, there was certainly no pleural or peritoneal tubercle, and all the other organs were unaffected—a very important case. They concluded that there was great necessity for the thorough inspection of both dairy cattle and of animals that were slaughtered for food purposes, but it might be accepted that the danger of contracting tubercle from milk was greater than that of contracting it from meat, and that in only a certain proportion of cattle affected with tuberculosis did there seem to be any danger to be anticipated from the ingestion of the flesh. In the main they agreed with Professor Burdon Sanderson and Dr. Bang, that there was not yet sufficient evidence on which to decide that the total seizure of meat from tuberculous animals should be resorted to.

Professor Hamilton (Aberdeen) said that there were two principal channels of infection, (1) the gastro-intestinal tract, (2) the lungs; but in addition to these there was what might be spoken of as localised tubercle, which seemed to be shut off entirely from all communication with the external world. (1) In the body the infection might take place by the air channels, as in the case of tuberculous pneumonia, where the virus was probably inhaled and the air vesicles were the primary seat of infection. (2) By the blood vessels, as in cases

of an eruption of military tuberculosis. (3) By the lymphatic vessels as in the more chronic forms of tuberculosis. In the gastro-intestinal canal a tuberculous lesion might accompany ordinary phthisis; it was often seen in children as a primary condition, and he should not be inclined to agree with Dr. Burdon Sanderson that it was not also primary in adults, as he himself had seen several cases, one quite recently. Previous catarrh was not always met with in the lung, but it was certainly a pre-disposing cause of tubercle, as it interferred with the protective epithelial covering. When tubercle followed whooping-cough, measles, and so on, it was probably the result of the spread of infection from pre-existing caseous spots, or it might be that the glands, weakened by the disease, fell an easy prey to tubercle bacillus. He could not understand the comparative immunity from tubercle enjoyed by the pericardium and the stomach.

Professor NOCARD (Paris) did not think that sufficient proof had as yet been accumulated that ingestion of tuberculosis could give rise to tuberculosis in any large proportion of cases. The greater number of experimental cases had given negative results, and he should require to see more positive results obtainable in experiments in which all possible sources of failure could be eliminated. Whilst saying this he must admit that in the case of children tuberculous material, whether in meat or in milk, would always prove a much greater danger.

Dr. HIME (Bradford) was glad to find that our foreign friends, who were not hampered as we were in making experiments, agreed with us in the main. He thought that we were likely to run wild on the subject of the total seizure of tuberculous meat, and he would point out that in no country did a total seizure list exist such as it was proposed to adopt here in England. In England he would point out that the inspection was worse than in any other country. He referred to Professor Lingard's experiments given in an official report, which he pointed out spoke only of tubercle being transmitted by caseous material and not by meat from tuberculous cows as was usually assumed. We have the authority of Koch himself, said Dr. Hime, that there is danger only when tuberculous material itself is ingested. Infection by milk he looked upon as proved, but he would also insist very strongly that the majority of infections in cases of phthisis was directly between man and man, and it was far more important that we should eliminate possible sources of contagion between human subjects, than that we should pay so much attention to the minor possibility of infection from animal to man.

Dr. BARLOW (London) speaking from a clinical point of view, was scarcely able to endorse the results of experimental researches, and he maintained that, as regards tuberculosis in children, we must for the present keep our minds open. There was no doubt that the *post-mortem* examinations in children's hospitals gave evidence of an enormous frequency of tuberculosis, but the evidence that such disease was the result of the ingestion of milk and meat was comparatively slight. Other sanitary precautions, which he looked upon as of primary importance, must not be lost sight of in our discussion of the subject. He would, however, enter a protest against the use of raw meat juice in the case of delicate children, as from what he had heard it was evident that such aliment might prove a source of considerable danger.

Professor PERRONCITO referred to a number of experiments that he had carried out with meat, milk, and the products of the latter, and then pointed out that spontaneous tubercle very rarely occurred in the pig, though it might frequently be met with as the result of infection. The same might be said of sheep; here also it might occur as a disease the result of infection.

The PRESIDENT had been greatly interested in the discussion, and thought that much good should arise therefrom. He was glad to find that there were some animals, such as the pig and the sheep, in which spontaneous tubercle was never met with, and he hoped that we might eat these with safety. Sheep especially had a great immunity as regards tubercle, but pigs were not so safe, as they were frequently the subjects of tuberculosis.

EXTRACTS AND NOTES.

A Cattle Disease in America.

The rumour that foot-and-mouth disease had broken out in the United States is still unconfirmed, but the following extracts from the *Live Stock Journal* show that some malady is widely prevalent:—The *New York Herald* of August 2nd contained the following: "Burlington, Iowa, August 1st. An alarming state of things exists among stock in this part of Iowa and neighbouring states. The local veterinarians report over one thousand milk cows suffering with a serious mouth and hoof trouble in Des Moines county alone. The disease seems to be sweeping over the country. The cows, tongues swell up, ulcerate, and prevent them from eating, and their joints grow stiff and break out with running sores. Their milk dries up, and if care is not taken the animal quickly perishes. A costly milk famine is threatened for the next year. Similar reports come from Illinois and Missouri." The *Breeders' Gazette* of August 5th has reference to a mysterious cattle disease in many sections of Illinois which is the subject of investigation by the State veterinary authorities. Dr. Hughes states that the disease is believed to be occasioned by some acrid substance found in the grass. "Fatalities are few, but, inasmuch as the mouth and alimentary canal become inflamed and ulcerated, it is almost impossible for the cattle to eat, and some sections report almost a milk and butter famine in consequence. It is believed by some that the disease is contagious, but a more reasonable hypothesis is that it arises from a common cause in each instance." *Colman's Rural World* (St. Louis) publishes a report from Sumner, Ill., to the effect that the "herds of Lawrence county are rapidly dying off, some unknown but virulent malady carrying off stock by the hundreds. Fifteen minutes after cattle are attacked by the disease they are dead. Last week, within a range of six miles of this place, one hundred head of stock were carried off."—*Live Stock Journal.*

The "Lancet" on "Section III."

The third point to which we would refer is the stimulus to Comparative Pathology and Veterinary Science that has been given in our midst by the formation of Section III., in which were brought together medical and veterinary men in a way that has hitherto not been attempted; and from the hearty manner in which co-operative work was entered into in the meetings of the section, it may be anticipated that these departments will more

and more throw in their lot together in elucidating some of the interesting but abstruse questions that were brought up for consideration during the Congress. The discussion on tuberculosis by the combined Sections II. and III. was the first of its kind that has yet been initiated. There has been an officially recognised combination of forces, and, instead of working at cross purposes, an honest attempt has been made between medical men and veterinarians to arrive at what will be best for the community, quite apart from any class interest. Of such discussions nothing but good can come, and if, in their endeavour to unite science with practice, those who took part in this discussion have been able to show the necessity for the formation of a department for the regulation of the inspection of cattle, even though no legislation be immediately carried out, much will have been gained.

Veterinary Honours

The Khedive has made a further distribution of the Orders of the Medjidie and Osmanie to British officers in recognition of service with the Egyptian Army. Veterinary Surgeon G. R. Griffith, Veterinary Department, gets the Fourth Class of the Osmanie.

CORRESPONDENCE.

THE PROPOSED CONFERENCE
BETWEEN THE COUNCIL OF THE R.C.V.S., AND THE GOVERNORS OF THE R.V.C.

To the Editor of the Veterinary Record.

SIR,

In reference to the remarks of Sir Henry Simpson at the Council meeting on the 5th inst., will you kindly grant me space to say that at the meeting of July 23rd I put the resolution, regarding the proposed Conference between the Council and the Governors of the Royal Veterinary College, simply as it appears in the minutes, and without any additions.

It is obvious that nothing which occured after the meeting was dissolved could appear in the minutes.

The matter can be fully investigated at the next Council meeting which it is proposed to hold in October, and until then I would ask the members of the profession to kindly suspend their judgment.

If, however, it should become necessary in the meantime to further notice the subject I will do so.—I am, Sir,

Your obedient servant,

J. D. LAMBERT.

President Royal College of Veterinary Surgeons.

August 26th, 1861.

Veterinary Societies—Addresses.

BOMBAY V.M.A.

Pres

Hon. Sec: S. K. Nariman, Esq., M.D., B.S.C., L.V.SC.

Off Hon. Sec: Mr. J. D. Parokh, G.B.V.C., Bombay Vet. Coll.

BORDER COUNTIES V.M.S.

Pres: Mr. J. Howe, M.R.C.V.S., Keswick.

Hon. Sec: Mr. J. Armstrong, M.R.C.V.S., Penrith, Cumberland

Meetings, Second Friday of Feb., June, and October.

CALCUTTA V.M.A.

Pres: Mr. Greenhill, M.R.C.V.S.

Hon. Sec: Mr. T. Assheton Smith, 156 Dhurrumtollah.

CENTRAL V.M.A.

Pres: Mr. F. G. Samson, M.R.C.V.S.,
Upper Green, Mitcham, Surrey.

Hon. Sec: Mr. H. G. Rogers, M.R.C.V.S.,
170 Brompton Road, London, S.W.

Meetings, First Thursday in each month, except August and September, First Avenue Hotel, Holborn, at 7 p.m.

EASTERN COUNTIES V.M.A.

Pres: Mr. Wm. Bower, M.R.C.V.S., East Rudham, Swaffham,

Hon. Sec: Mr. R. S. Barcham, M.R.C.V.S., North Walsham.

Meetings, Second Tuesday, Feb. and July.

VET. MED. ASSN. OF IRELAND.

Pres: Mr. C. Steel, F.R.C.V.S., 188 Clonliffe-road, Dublin.

Hon. Sec: Mr. J. McKenny, M.R.C.V.S.,
116 Stephens-green-west, Dublin.

LANCASHIRE V.M.A.

Pres: Mr. A. Leather, F.R.C.V.S., Tariff-street, Liverpool.

Hon. Sec: Mr. G. Gartside Mayor, F.R.C.V.S.,
Kirkham, Preston.

Meetings, 2nd Wednesday in March, June, Sept., & Dec.

LINCOLNSHIRE V.M.S.

Pres: Mr. F. L. Gooch, F.R.C.V.S., Stamford, Lincolnshire

Hon. Sec: Mr. J. Smith, M.R.C.V.S., Huntingdon.

Meetings, Second Thursday, Feb., June and October.

MIDLAND COUNTIES V.M.A.

Pres: Mr. John Malcolm, F.R.C.V.S.,
Holiday-street Wharf, Birmingham.

Hon. Sec: Mr. H. J. Dawes, M.R.C.V.S.,
High St,. West Bromwich.

Meetings, Second Friday in Feb., May, Aug., and Nov.

NATIONAL VET. ASSOCIATION.

Pres: Prof. J. McCall, Veterinary College, Buccleuch St., Glasgow

Sec: Mr. John Malcolm, F.R.C.V.S., Birmingham.

Treas. and Chairman of Prov. Com: Mr. S. Wragg, F.R.C.V.S.,
17 Church-lane, Whitechapel.

NORTH OF ENGLAND V.M.A.

Pres: Mr. A. Hunter, F.R.C.V.S., Newcastle-on-Tyne.

Hon. Sec: Mr. W. A. Hancock, M.R.C.V.S.,
Forest Hall, Newcastle-on-Tyne.

Meetings, Third Friday, Feb., May, Aug. and Nov.

ROYAL COUNTIES V.M.A.

Pres: Mr. W. Wilson, F.R.C.V.S., Berkhampstead, Herts.

Hon. Sec: Mr. H. Kidd, F.R.C.V.S., Hungerford, Berks.

Meetings, Last Friday, Feb., June and Nov.

ROYAL SCOTTISH V.S.

Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

Hon. Sec: Mr. W. D. Fairbairn, M.R.C.V.S., Cupar, Fifeshire

ROYAL VETERINARY COLLEGE M.A.

Pres: Prof. J. Penberthy.

Hon. Sec: Prof. J. Macqueen.

SCOTTISH METROPOLITAN V.M.S.

Pres: Mr. Jas. Clarke, F.R.C.V.S., Coupar-Angus.

Hon. Sec: Mr. P. Moir, M.R.C.V.S., 9 Kilmain Terr. Edinbro

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.

Pres: Mr. G. T. Pickering, F.R.C.V.S., Monk Bar, York.

Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.

Meetings, First Friday, Mar., June. Sept. and Dec.

SOUTHERN COUNTIES V.M.S.

Pres: Mr. E. A. Hollingham, M.R.C.V.S.,
79 Anerley Road, London, S.E.

Hon. Sec: Mr. C. Pack, M.R.C.V.S., Lymington, Hants.

Meetings, Last Thursday, Mar., June and Sept.

WESTERN COUNTIES V.M.A.

Pres: Mr. W. Penhale, F.R.C.V.S., Barnstaple, Devon.

Hon. Sec: Mr. W. Harvey Bloye, M.R.C.V.S.,
Week Street, Plymouth.

Meetings, Third Thursday, March and September.

WEST OF SCOTLAND V.M.A.

Pres: Mr. D. Allan, M.R.C.V.S., Clarkston-by-Busby, Glasgow

Hon. Sec: Mr. W. Anderson, F.R.C.V.S., West Nile-st Glasgow

YORKSHIRE V.M.A.

Pres: Mr. T. C. Toope, M.RC.V.S., Knaresborough.

Hon. Sec: W. F. Greenhalgh, M.R.C.V.S., Hunslet, Leeds.

Meetings, Last Friday in Jan., April, July, and October.